An Information Circular on Health Education from the
CURRICULUM DEVELOPMENT and IMPLEMENTATION BRANCH
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MANITOBA
DEPARTMENT OF EDUCATION

HEALTH EDUCATION OF MANITOBA STUDENTS

Grade 5 and 10 students were assessed in Health in February, 1982. This assessment is part of the ongoing program of the Department of Education to provide current and accurate information on the performance of Manitoba students. Such assessments have already been completed in Reading, Writing, Science and Mathematics. The data obtained through this program are intended to provide information on student performance to educators involved in curriculum development, as well as to teachers, other educators at the local level, and to the public generally.

Students in grades 5 and 10 were assessed by means of tests developed by the Department with the assistance of a committee of Health educators. The grade 5 test included material essentially up to the end of grade 4 while the grade 10 test included material up to the end of grade 9. Results were tabulated for the province as a whole based on a representative sampling of students throughout Manitoba. A PRELIMINARY REPORT, containing detailed data on the performance of students, was produced and distributed to schools in May of last year. This was followed in January by a FINAL REPORT which included conclusions and recommendations. The reports can be obtained from the Department of Education.

WHAT WAS ASSESSED?

Student performance was determined in seven basic Health areas. These are: Dental Health, Safety, Mental Well-Being, Nutrition, Environmental Health, Physical Well-Being and Interpersonal Relationships. At the time of the assessment, the kindergarten to grade 9 Health curriculum was under review by the Department. Test questions were designed to cover objectives derived from both the established and revised curricula and were based upon recommendations from teachers throughout Manitoba. Tests were developed, field tested, and refined before they were administered to the sample of grade 5 and 10 students. Teachers could request enough test booklets to test entire classes — to be used for their own evaluative purposes.

The tests contained questions from both the cognitive and affective domains. The cognitive questions are representative of 2 general levels of thinking: — the first, knowledge and comprehension, comprises the recalling and relating of facts, methods, procedures, patterns, structures, and the understanding of communications. This example is from the grade 5 test:

Fluorides are put into drinking water to
A. improve taste of water.
B. kill bacteria in water.
*C. help prevent tooth decay.
D. whiten teeth.

The second, application and higher level thinking, included application of generalizations and principles to relatively unique settings, analysis of situations, and identification and verification of principles. A grade 5 example is:

Which of the following is a balanced meal?
A. Tuna sandwich, apple, orange juice
B. Peanut butter sandwich, bran muffin, carrot sticks
*C. Chicken sandwich, salad, and a glass of milk
D. Egg sandwich, oatmeal cookies, and tomato juice

The affective questions relate to student habits, beliefs, values, attitudes, and intentions. There is no correct or best answer to a question; responses to these questions provide an indication of what students actually do or would do, how they feel, and what they believe rather than what they understand. A grade 10 example is:

How often do you floss your teeth?
A. At least once a day
B. Two or three times a week
C. Once a week
D. Never

Student performance was summarized for more specific topics within each of the seven content areas. An interpretation panel of teachers, Health professionals, and trustees interpreted the results on each topic for the two grade levels according to the scale: Strength, Very Satisfactory, Satisfactory, Marginal, and Unsatisfactory.

RESULTS OF THE GRADE 5 ASSESSMENT

Dental Health. Understanding the importance and purpose of teeth, environmental factors affecting teeth, and personal care of teeth are components of this content area. While students' understanding of the importance and purpose of teeth is high, their understanding of environmental factors and personal care is only satisfactory. For example, 84% of students know which teeth are used for grinding food; only 41% know the purpose of fluorides. Flossing is a relatively new behaviour compared to brushing teeth. In their personal habits, 77% indicated that they brush their teeth daily while only 28% said they floss daily. It is interesting to note that 71% state they they SHOULD floss daily.

Safety. The second major content area includes safety practices at home, school, and in the community. Student performance was considered very satisfactory. Here is a typical example in which 88% answered correctly:

If your clothing catches fire, what is the best method of putting the fire out?
A. Shout for help
B. Pour water on your clothes
*C. Drop and roll
D. Look for a blanket

A large proportion of students believe that they CANNOT prevent accidents. In fact, 15% of students believe that playground accidents cannot be prevented at all while 51% believe these accidents can be prevented some of the time.

Mental Well-Being. This content area includes self-concept, personality, social learnings, and personal management skills. Performance on self-concept items was rated as very satisfactory while performance on drug use and abuse, and personal management was considered marginal. This question was answered correctly by 44% of the students:

Which parts of the body does alcohol affect MOST?
A. Heart, lungs
B. Stomach, muscles
C. Lungs, liver
*D. Brain, liver

Questions that deal with emotions made up the personality topic. The interpretation panel concluded that although students are generally happy at school, they do not often constructively communicate negative feelings such as anger, sadness, and disappointment. This affective question illustrates the point (the numbers in parentheses refer to the percentage of students selecting each response):

When you feel very angry, you usually
(29) think of things to make you happy.
(32) stay angry for awhile.
(11) are nasty with people around you.
(26) talk with someone about your feelings.

Nutrition. Student knowledge of nutrition is generally poor. Student understanding of food groups, nutrients, and balanced meals is unsatisfactory. Approximately 52% of the students knew that bran muffins and rice belong to the same food group while 33% said that bran muffins were in the same food group as butter. Concerning common snack foods, three-quarters of the students know that peanuts are more nutritious than jello, popsicles, or chocolate bars; however, 40% chose either chocolate milk or ice cream as being a non-nutritious food.

Environmental Health. This content area encompasses environmental health factors, health care systems, and community and individual action. The results of affective questions showed that students have a positive attitude toward litter control and believe that man is responsible for pollution. Students view safe drinking water, clean air, police and hospital services as being very important to a community. Performance on the cognitive questions in this area was considered

inadequate. While 63% of the students know that a green forest would have less air pollution than a seaport, airport, or city street, only 13% selected the proper method of removing a bee stinger.

Physical Well-Being. This area includes topics on sense organs, major body organs, and fitness. Student understanding of sense organs and their functions is considered inadequate. For example, only 49% of the students know that the sense organs for touch are found in the skin.

Concerning matters of hygiene, one-half of the students indicated that they always wash their hands before making lunch or before eating and almost three-quarters of the students indicated that they always wash their hands after using the toilet. Student performance on questions relating to fitness was rated marginal. Scores were higher in questions relating to physical fitness and lower on items relating to organ functions. For example, 75% of the students were able to select an exercise that would increase leg strength, but only 34% know the basic function of the lungs.

Interpersonal Relationships. Family relationships and friendship are components of this content area. Performance was rated as marginal. However, students demonstrated a good knowledge of family responsibility as illustrated by the 70% correct response to this question:

Janet's mother is in bed with a cold and her younger sister is upset. How can Janet help her family?

*A. Read a story to her sister
B. Invite her friends to the house to play
C. Go to the store
D. Watch television

RESULTS OF THE GRADE 10 ASSESSMENT

Dental Health. Environmental factors and personal care of teeth were tested at this level. Students did not perform well in these areas. While 72% of the students know that a good way to deal with most bad breath is to brush and floss teeth after eating, only 22% floss at least once a day. (Recall that the grade 5 results showed that 28% of grade 5 students floss daily.)

Students found this question on dental plaque quite difficult. Only 45% selected the best or correct answer:

What causes dental plaque?

A. Sugar, bits of food, calcium
B. Saliva, bacteria, calcium
C. Bacteria, chips of tooth, bits of food
*D. Saliva, bacteria, bits of food

Safety. Students demonstrated a good knowledge of safety prevention in the home, school, and community environments. Questions on life support assistance methods, however, were not well done by students. A weakness in first aid knowledge is exemplified in the question in which only 46% responded correctly:

Carol arrives at a car accident. A man is bleeding very badly and seems to be in shock. What should Carol do first?

A. Remove the man from the car
B. Go call an ambulance
C. Begin to treat the man for shock
*D. Try to stop the bleeding
E. Do nothing for fear of a lawsuit

Mental Well-Being. Students performed well in this content area. Questions on aspects of personality were answered correctly by the large majority of students. A good knowledge of social responbility is shown by the question in which 88% selected the correct response:

Mary borrowed five dollars from Sally and promised to repay her within one month. Two months have passed and Sally has not been repaid. Choose the MOST responsible way for Sally to handle this problem.

*A. Sally should remind Mary she owes her money and ask Mary when she will pay it
B. Sally should warn Mary that she will tell her older brother to force Mary to pay up
C. Sally should do nothing about it and hope that Mary remembers
D. Sally should try to borrow money from Mary and not repay it

Student performance on questions relating to drug use and abuse and on personal management skills was given a satisfactory rating by the interpretation panel. In a question on reasons for smoking, 84% of students said that young people start smoking because it makes them feel older. Students are generally not as certain about drug effects during pregnancy. Only 61% definitely agreed that heavy smoking would increase the chances of a baby being born with a low birth weight.

In affective items in this area, 66% of students stated that their parents are the greatest influence in their lives and 60% said they would choose to talk to parents and friends about emotional problems. This item illustrates what students would do if they were invited to a party at which drugs would be used (the numbers in parentheses indicate the percentage of students selecting each response):

You have been invited to a party at which drugs will be used. What would you do?

(14) Go to the party and consume drugs
(48) Go to the party, but abstain from drugs
(12) Make up an excuse not to attend the party
(1) Seek guidance
(26) Decide not to go

Nutrition. Questions on food groups and nutrients were poorly answered. For example, only 50% of the students know that brown bread and beans are a better source of protein than bananas, mushrooms

and carrots, or celery. While students know that nutrients are important to health, they are weak in their knowledge of dietary deficiency diseases. For example, most students know that vitamins are important in their diets during the entire life cycle, but only 44% know that anemia could be the result of a deficient diet.

Personal taste is an extremely important factor in food selection; over 60% select food in a cafeteria and almost 50% select food in a supermarket based upon personal taste. Causes of overweight are not well understood.

Low scores occurred in questions dealing with balanced meals, food preparation and nutrition consumer knowledge. In this "balanced breakfast" question, 51% chose the correct answer, while 41% selected "C" as the answer; this group is obviously rejecting "A" as a balanced breakfast:

A balanced breakfast could consist of
- A. orange juice, milk, peanut butter and banana sandwich.
- B. sausage, apple juice, and milk.
- C. oatmeal, milk, grapefruit, and egg.
- *D. either A or C.

In addition, student knowledge of the digestive system and the role of fibre in the diet is weak.

Environmental Health. Student cognitive knowledge in this content area is stronger than it is in nutrition. Approximately 80% know that automobile and industrial chemicals are major sources of pollution, that nuclear power plants may release radioactive substances, and that overexposure to the sun may cause cancer. However, student responses to affective questions in this area illustrate uncertainty and some apathy, as is shown by this question:

Your community is planning to spray for mosquitoes. What would your reaction be to this issue?
- (21) You will be satisfied because the authorities know what they are doing
- (25) You will do little because you feel the authorities will go ahead and do it despite what you have to say
- (31) You will check the facts on the spray and the reasons for spraying and base your opinion on these facts
- (23) The issue does not concern you

Students performance on questions relating to health care systems and solutions to environmental health problems was satisfactory. This question was answered correctly by 83% of the students:

Communities prevent pollution of water by
- *A. treating sewage water before it enters lakes and rivers.
- B. breaking up ice in lakes and rivers.
- C. keeping motor boats out of lakes and rivers.
- D. stocking lakes and rivers with fish.

Only 49% of the students believe that prevention should be the major emphasis in our health care system.

Physical Well-Being. Student understanding of growth and development was rated as marginal. Performance was higher in questions relating to fitness and lower in those relating to body function. This example was answered correctly by 36% of the students:

Indicate the path of the blood (correct order). After it leaves the lungs and goes through the pulmonary vein, it then goes through the
- A. right atrium, aorta, and veins.
- B. left ventricle, pulmonary artery, and capillaries.
- *C. left atrium, left ventricle, and aorta.
- D. capillaries, right ventricle, and veins.

Student understanding of the endocrine and reproduction systems is unsatisfactory. Just over 60% know that alcohol consumption by an expectant mother may cause retardation in the unborn baby. Many of the students do not know the structure and functions of the reproductive and endocrine systems; the major function of the fallopian tubes is understood by 55% of the students, while 48% understand the major function of the endocrine glands.

Student performance in the disease control and prevention topic was unsatisfactory. Knowledge of how immunization prevents disease is inadequate. A question of how a vaccine produces an immunity was answered correctly by 61% of the students. Students are not fully aware of regulations concerning the control of sexually transmitted diseases.

Interpersonal Relationships. Questions relating to life stages were answered well by students. Students are comfortable in their present stage of development with 79% selecting "C" in the affective item below:

At what age in your life do you feel that you have had the most satisfaction and enjoyment?
- A. 5 to 9 years
- B. 10 to 12 years
- C. 13 to 16 years

Performance on questions relating to family functions and stability was satisfactory. The majority of students consider that both mothers and fathers have parenting responsibilities and that children should have family responsibilities.

TEACHER AND ADMINISTRATOR SURVEYS

Surveys were administered to teachers and school principals following the student assessments. The surveys were designed to collect information that would assist in the general interpretation of the student data and to be of value to curriculum development committees, curriculum services personnel, and to educators in general. Information was collected on

aspects such as time spent on each Health topic, availability of resources, background of teachers, evaluation procedures, and whether or not Health is taught as a separate subject. A few highlights are presented here.

In some classrooms Health is taught as a separate subject and is timetabled into the school program, while in other classrooms it is integrated within other subjects; in some classrooms it is both timetabled as a separate subject and also integrated within other subjects. The majority of grade 3 to 6 teachers who timetable Health as a separate subject teach the subject up to one hour a week. Three-fifths of school administrators state that their grade 7 to 9 teachers timetable Health as a separate subject; a majority of these schools teach Health from 20 to 80 minutes per week.

Teachers of grade 3 who integrate Health do so primarily in Social Studies, Science, and Language Arts and teachers of grades 4 to 6 integrate primarily in Science and Language Arts. Teachers of grade 7 to 9 integrate mainly in Science, Physical Education, and Guidance. Teachers of grades 4 to 6 who timetable Health spend little or no time teaching the Environmental Health and Interpersonal Relationships content areas of the Health program while their counterparts in grades 7 to 9 spend little time teaching Dental Health, Environmental Health, and Interpersonal Relationships. Student knowledge in Health is usually evaluated and reported separately by teachers who timetable Health as a separate subject. Those teachers who integrate Health within other subjects generally do not evaluate students in Health specifically.

Teachers are more satisfied with kits, pamphlets, and films than they are with Health texts and curriculum guides that are presently in the schools. Health support materials offered to teachers by the various governmental and non-governmental agencies receive minimal usage in the classroom. A small minority of grade 3 teachers use Health texts; three-quarters of teachers of grade 4 to 6 who timetable Health use texts while less than one-half of the teachers who integrate Health use Health texts. In general, very little money is expended on Health related materials in the schools.

The majority of teachers who teach Health have little or no professional background in Health education.

ASSESSMENT FINDINGS & RECOMMENDATIONS

The findings and recommendations that follow are based upon the student assessment results and the judgments made by the interpretation panels.

Grade 5 Findings

Very satisfactory performance on questions relating to:
- Importance and purpose of teeth
- Safety in the home, in traffic, and in school
- Self-concept

Satisfactory performance on questions relating to:
- Personal care of teeth
- Knowledge of nutritious snacks

Marginal performance on questions relating to:
- Drug use and abuse and personal management skills
- Fitness
- Interpersonal Relationships

Unsatisfactory performance on questions relating to:
- Food groups, nutrients, and balanced meals
- Environmental factors and health issues
- Sense organs

Grade 5 Recommendations

Since the grade 5 test was based on Health objectives up to the end of grade 4, recommendations apply to the grade 1 to 4 Health programs. Recommendations that relate to the following 4 student goals were stated; they are considered to be the responsibility of both the home and school.
- Practice of good dental care
- Selection of nutritious snacks
- Knowledge of balanced meals
- Habits of hygiene.

Other recommendations stress the need for a greater instructional emphasis and are directed to the school. Some of these relate to:
- Water fluoridation
- Accident prevention
- Positive management of emotions
- Effects of alcohol and caffeine
- Food classification and selection
- Immunization and disease control
- Body organs and systems (structure, function, and care)
- Development of skills and concepts that nurture friendship

Grade 10 Findings

Very satisfactory performance on questions relating to:
- Home, school, community, and traffic safety
- Self-concept and personality
- Environmental issues
- Life stages

Satisfactory performance on questions relating to:
- Drug use and abuse and personal management skills
- Nutritional effects, food influences, and weight control
- Health care systems and solutions
- Family functions and stability.

Marginal performance on questions relating to:
- Personal care of teeth
- Life support assistance methods
- Growth and development.

Unsatisfactory performance on questions relating to:
- Food groups and nutrients, consumer knowledge, food preparation, balanced meals, digestion and elimination.
- Endocrine and reproduction systems, disease control and prevention.

Grade 10 Recommendations

Since the grade 10 test was based on objectives up to the end of grade 9, recommendations apply primarily to the grade 7 to 9 Health programs. Recommendations in general reflect the need for a greater instructional emphasis and are directed toward the school. Some of these relate to:
- The purposes and care of teeth and their contribution to health
- First aid instruction
- Self-image
- Food groups and nutrients, nutritional deficiency diseases, food selection and weight control
- Balanced meal planning, nutrition consumer knowledge, and food preparation
- Digestion and elimination
- Actions and alternatives to deal with environmental issues
- Prevention as an approach to health issues
- Structure and function of the body's defence system
- The effects of drugs on a fetus
- Prevention and control of diseases

In general, a greater emphasis should be applied in educating students on issues in which the individual can take action in daily living practice to improve the quality of life.

Survey Recommendations

The recommendations that follow were delineated by the committee of Health educators and are based upon summaries of the surveys. Recommendations were directed toward teachers who are encouraged to:
- Follow recommended Department time guidelines
- Spend an appropriate amount of time teaching each content area
- Be aware of the new provincial Health curriculum
- Update their knowledge of Health related topics through inservice and teacher training courses.

The following recommendations are directed to the Department of Education:
- Prepare a list of recommended Health resource materials that support the new Curriculum
- Provide evaluative models and materials to assist teachers in the assessment of student lifestyle practices.

For further information contact:
Curriculum Development and
Implementation Branch
Department of Education
223-1200 Portage Avenue
Winnipeg, Manitoba
R3G 0T5 (Telephone: 786-0144)

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